Metrohm

Metrohm AG
CH-9100 Herisau
Switzerland
Phone +41 71 353 85 85
Fax +41 71 353 89 01
info@metrohm.com
www.metrohm.com

tiamo™
titration and more

Release Notes tiamo 2.4

1 Purpose

This document describes the differences between the new software version **tiamo 2.4** and its predecessor **tiamo 2.3**.

2 New features

General

- New determination examples for conductometric titrations are included in the delivery (was already implemented in tiamo 2.3, Patch 1).
- It is now possible to carry out two-channel measurements using two USB2 Avantes spectrometers that are connected with each other with a synchronization cable.

Method program part

The flash rate can now be defined for the commands that can be carried out with the Avantes spectrometer (**MEAS Ref**, **MEAS Spec**, **MEAS Opt**, **MEAS Opt Conc**, **CAL MEAS Opt**).

New instrument firmware

The new versions allow the instruments listed below to be operated directly via the computer's USB3.0 connectors.

Instruments	Firmware version
814 USB Sample Processor	5.814.0025
815 Robotic USB Sample Processor XL	5.815.0026
846 Dosing Interface	5.846.0022
851 Titrando	5.851.0012
852 Titrando	5.852.0012
855 Robotic Titrosampler	5.855.0014
856 Conductivity Module	5.856.0022
857 Titrando	5.857.0022
859 Titrotherm	5.846.0022

Instruments	Firmware version
864 Robotic Balance Sample Processor XL	5.815.0026
867 pH Module	5.867.0022
874 USB Oven Sample Processor	5.874.0012
888 Titrando	5.888.0022
890 Titrando	5.890.0022
901 Titrando	5.901.0022
902 Titrando	5.902.0022
904 Titrando	5.904.0022
905 Titrando	5.905.0022
906 Titrando	5.906.0022
907 Titrando	5.907.0022

Manual program part

- Dosing devices and stirrers can now be controlled in the section of the 089 Photometer.
- In two-channel instrument setups, it is possible to control the flash rate for the instrument for the measuring channel.

3 Improvements

General

- Starting with version 2.4, tiamo also runs on Windows 8 operating system.
- The installation manual now contains a description of the directories that can be stored in a network.
- E-mails can now be sent simultaneously to several recipients.
- The **Calculation algorithms ▸ Statistics** chapter in the online help has been revised.

Workplace program part

- For IO and stepper motor controllers, it is possible to access the inputs from two simultaneously active workplaces, so that determinations can proceed in parallel (was already implemented in tiamo 2.3, Patch 1).
- If an instrument required in the method does not exist, the message **009-032 Device not OK** is displayed instead of **009-117 Device not ok**. The new message also contains the corresponding command name, in addition to the instrument name.
- The determination of the transmission factor (**MEAS TMF** command) has been optimized.

Database program part

- If a regular spectrum is measured with the Avantes spectrometer (MEAS Spec), it is now possible to modify the evaluation areas during the reprocessing of the determination.

- In the **Calibration curve/Calibration data** dialog window, the number of decimal places for **Variance** has been increased from 1 to 3 for **CAL LOOP pH**, **CAL LOOP Conc** and **ELT LOOP**.

Method program part

- New method examples are supplied for the 864 validation. They are stored in the directory
  ...\examples\methods\english\Automation\864 Validation methods.
- In the **MET Cond** command, the lower limit of the threshold value of the minimum and maximum evaluation has been lowered on the **Additional evaluations** tab.
- The **off** selection for the **Control range** parameter is described in the online help in more detail for the commands **SET** and **KFT**.
- In the **CAL LOOP Conc** command, the selection for the **Number of standards** parameter has been raised from 5 to 9.
- A recommendation has been added in the **Standard addition - Overview** chapter in the online help.
- The description of the principle of titration and the optimization of the parameters has been improved in the **STAT - Overview** chapter in the online help.
- Variance is now also available as the **VAR** command variable in the commands **CAL LOOP pH**, **ELT LOOP** and **CAL LOOP Conc**.
- The default value for the stirring rate of the 089 Photometer has been increased to 5. This modification affects the commands **MEAS TMF**, **MEAS Opt**, **MEAS Opt Conc** and **CAL MEAS Opt**.

Configuration program part

- The limitation to two instruments applies only for Metrohm instruments (Titrino, Titrando, etc.). That means that balances and other generic (i.e. non-Metrohm) instruments can be included without limitation (was already implemented in tiamo 2.3, Patch 1).
- The online help did not describe how signing affects the number of login attempts, i.e. the relationship between signing and login monitoring.

4 Fixed bugs and problems

General

- Beginning with tiamo 2.3 (Build 98), communication between software and devices has been optimized (was already implemented in tiamo 2.3, Patch 1).
- **Client ID** was output as text in various places (in the header of PDF reports and the report templates, in the **Information** subwindow on the **Determination** tab in the **Database** program part, in the **Global Variables** subwindow on the **Global Variable** tab in the **Configuration** program part). The associated value, however, corresponded to the computer name. **Client ID** has now been replaced with **Computer name** (the error was already eliminated in tiamo 2.3, Patch 1).

Workplace program part

- If a method was programmed in which a check at the time of the start was required for one or several method variables of the type **Number** (e.g. the **Sample size**) or **Date/Time** and which contained an **ERROR** track, the exception wizard appeared in the **Workplace** program part after the **014-152 Field empty** message was exited when the determination was started (tiamo crashed) (this error was already eliminated in tiamo 2.3, Patch 1).

- If a method was written in which the file name did not have the extension **.pdf** in the **REPORT** command in the **PDF file** field (completely forgotten or only the period forgotten, e.g. **abc** or **abcpdf**), then this would lead to a crash at the start of a determination (the error was already eliminated in tiamo 2.3, Patch 1).

- If the digital output of the Avantes spectrometer was used (**CTRL** command) while a measuring command using the same device was also present in the method, then the message **014-122 Device occupied** appeared (the error was already eliminated in tiamo 2.3, Patch 1).

- In the **View ▸ Properties** menu item, the properties of the respective live display were always displayed as **Properties Live display** instead of **Properties Live display #** (the error was already eliminated in tiamo 2.3, Patch 1).

- If it is determined during the start test that the wavelength of the calibration of the colorimetric sensor does not match the wavelength of the light source of the 089 Photometer in the **MEAS Opt Conc** command, then the message **014-042 Incorrect wavelength** appears. Instead of the wavelength value of the colorimetric sensor calibration, the wavelength value of the light source of the 089 Photometer was specified in the message (the error was already eliminated in tiamo 2.3, Patch 1).

- The stop conditions for the commands **DIGITAL IN** and **ANALOG IN** did not function, although the maximum running time did (the error was already eliminated in tiamo 2.3, Patch 1).

- In the **ELT MEAS** command for the electrode test, the drift was not evaluated at the correct time. This resulted in the sensor rating being too strict.

- If a measuring command contained in a separate track was called from a loop, then the command's indexed variables were not available after the first run.

- If, in a **REPORT** command, all options were selected in the **Report output** section (**Printer**, **PDF file** and **Send e-mail**), then it could happen that e-mails were not sent during the run.

- If **Calibration data monitoring** was enabled for a conductivity sensor and the validity for the calibration had expired, then no message was displayed in the method run of a conductivity measurement, **MEAS Cond**, and a titration, **MET Cond**.

- No message was displayed while the **CAL Cond** command was being carried out when the new cell constant was outside the limit values defined for the conductivity sensor.

- The **DBL** command variable, which indicates the total time for processing the command in s, yielded incorrect times for the commands **MEAS Ref**, **MEAS Spec** and **CAL Spec**.

- If a standard addition was performed with no sample size entry, tiamo crashed.
- The **016-003 Invalid position** message used wrong parameters (instrument name).
- If, on the **Determination series** tab in the **Run** subwindow, a new line was added to the working sample table, then the method was entered in the new line also when the **Method** check box was deactivated in the **Copy automatically into next determination** section under **[Sample table] ▸ Properties… ▸ Edit**.
- When a method consisting of several parallel tracks was run, two different tracks were displayed at the same time in the live displays. When you selected **Quit** in the context menu while hovering with the cursor over one of the two live displays, then both tracks were canceled.
- In the **CAL MEAS Opt** command, no check was made during start test as to whether the **Wavelength** measuring parameter corresponded with the wavelength of the calibration of the colorimetric sensor.
- The **MEAS TC Cond** command was not executed correctly in determinations for the temperature coefficient measurement of the conductivity. When the start temperature was reached, the actual measurement was not started, i.e., there was no live display of the curve. Instead, the text **Waiting for data…** was still displayed. The error message **013-258 Invalid TC conductivity** appeared when the stop time was reached; the determination was canceled after the confirmation of the error message.

Database program part

- If a determination was carried out with intelligent electrodes, then the ADC data (ADC type and serial number) of the analog (non-intelligent) measuring input to which the iConnect was connected was stored in the **Database**, on the **Configuration** tab in the **Information** subwindow (this error was already eliminated in tiamo 2.3, Patch 1).
- If a determination was carried out with the 089 Photometer, then the blank value was not subtracted in the database from the raw data **IME** and **EME** (initial and end measured values, respectively) associated with the commands **MEAS Opt** and **MEAS Opt Conc** (this error was already eliminated in tiamo 2.3, Patch 1).
- If statistically linked determinations that also contained as results such things as the slope, the axis intercept and the correlation coefficient for linear regressions (variables **SLO**, **ITC**, **COR**) were recalculated in such a way that a determination or a result was switched off, then the recalculated results of slope, axis intercept and correlation were not correct (this error was already eliminated in tiamo 2.3, Patch 1).
- If report templates with modified curve properties with regard to the default templates supplied were imported from tiamo 1.x, then the settings for the curve properties were reset to the default values after the import.
- The program occasionally crashed when generating a PDF with a report template.
- In tiamo 2.3, Patch 1, the information on the Thermoprobe was no longer displayed on the **Configuration** tab in the **Information** subwindow in the case of determinations involving thermometric titration.
- If the ENTER key was pressed directly after the reprocessing dialog was opened (without having made any modification), tiamo crashed.

- The value of the **ETR** variables was not output correctly in the calculations.
- In the commands **STDADD dos** and **STDADD auto**, no entries were present for the parameters of the solution (solution name, concentration, production date, titer, date of titer determination and titer method) on the **Configuration** tab in the **Information** subwindow. In addition, the titer was not correctly stored.
- Recalculating a thermometric determination in which the TET command was not run through (no measuring point list) caused a crash.

Method program part

- An 867 pH Module present in the device configuration could in fact be selected as **Device type** in the **ELT MEAS** command, but not as **Device name**. This led to a situation where the electrode test could not be carried out with the 867 pH Module (the error was already eliminated in tiamo 2.3, Patch 1).
- The device 846 Dosing Interface could not be selected in the **PORT** command. This led to a situation where the **PORT** command could not be performed with this kind of device, even though the firmware supported this (the error was already eliminated in tiamo 2.3, Patch 1).
- The description of **Fill automatically at end** was not correct in the online help for the **ADD** command (the error was already eliminated in tiamo 2.3, Patch 1).
- If a new stepper motor was created in the **STEPPING MOTOR** command on the **Stepping motors** tab or the properties of an existing one viewed, then the title of the dialog window was **Method variable -** (instead of **STEPPING MOTOR #**, e.g. similar to the **DIGITAL OUT** command) (the error was already eliminated in tiamo 2.3, Patch 1).
- If a method containing the **KFC** command was imported from tiamo 1.x into tiamo 2.x, an error message was displayed during the run. The user had to select the sensor again and save the method in order to make it runnable again.
- The maximum run time was not correctly observed in the commands **LOOP**, **DIGITAL IN** and **ANALOG IN**.
- In the online help, the input range for the maximum run time was not correct in the **DIGITAL IN** command on the **Stop criteria** tab.
- The formula for filling rate 2 for tandem dosing has been corrected in the online help.
- The command variables beginning with RS, CV or GV were not correctly displayed for the **CALC** command in the formula editor in the variable tree.
- If **not defined** was selected as device name, then the device type was not indicated in the method parameters in the **method report** and in the **Fixed report**.
- If the method parameter report of a method containing the release commands **RLS DOS** and/or **RLS DEV** was output in the program part **Method** or **Database**, the corresponding fields were not output in the generated PDF file.

Configuration program part

- If a barcode reader and a balance were included first in the device configuration for the light version, then it was no longer possible to include Metrohm devices (the error was already eliminated in tiamo 2.3, Patch 1).

- The incorrect text designation for the colorimetric sensors was used (**Sensor** instead of **Colorimetric sensor**) in the user administration under "Access rights for group 'Group designation', Configuration, Functions" (the error was already eliminated in tiamo 2.3, Patch 1).
- The online help for the **Limit values for colorimetric sensor – 'Name of the colorimetric sensor'** dialog window was missing (the error was already eliminated in tiamo 2.3, Patch 1).
- After a pH calibration, the calibration date is also entered on the **Calibration data** tab with the sensors, among other things. If, after a successful calibration, the intelligent sensor was deleted from the configuration and then included again, then the **Date ELT** could be seen in the **Calibration date** field (the error was already eliminated in tiamo 2.3, Patch 1).
- In the online help for **Export configuration data** and **Import configuration data**, the descriptions for **Export templates** and **Electrode type templates** were not available (the error was already eliminated in tiamo 2.3, Patch 1).
- If you cannot log in within the number of attempts specified in the security settings and if at the same time the **Message by e-mail** option is enabled, then an e-mail will be sent to the specified address. **Client name** was output as text in the subject line of this e-mail, and the associated value corresponded to the name of the computer; **Client name** was replaced by **Computer name** (the error was already eliminated in tiamo 2.3, Patch 1).
- If the settings in the user administration were output as a PDF, then it could happen that the PDF file did not correspond with the settings in the software for some elements.
- The input range for the titer value of a solution was modified in the online help.
- If the table of colorimetric sensors was sorted according to the date, tiamo crashed.
- At least one titrant with invalid titer existed in the **Titrants/Solutions** sub-window. If the table was then sorted according to titer, then nothing was displayed in this program part (empty display).
- If a pH calibration or an electrode test was carried out with an intelligent sensor on one system (tiamo and Titrando) and the sensor was then transferred to another system, then the **Calibration temperature** field on the **Calibration data** tab was empty.
- If **Monitor TC data** was enabled for a sample solution (TC conductivity) and the validity for the TC data had expired, then no message was displayed during the method run of a measurement.

Manual program part

- If the measurement of a spectrum with the Avantes spectrometer was canceled by clicking on **[Stop]**, the **[Stop]** button correctly changed to **[Start]**, but the recording of the spectrum continued (the error was already eliminated in tiamo 2.3, Patch 1).
- When trying to approach a lift height greater than 90 mm with the 774 Oven Sample Processor, the program was unexpectedly finished.
- A table with the gas flow factors for various carrier gases enabling the correct determination of the gas flow in the 874 USB Oven Sample Processor has been added to the online help.

5 Compliance

The current software version does not contain any modifications that affect conformity of **tiamo** regarding 21 CFR Part 11 and GAMP.

Herisau, October 24, 2013

P. Hunziker

Vice President,
Head of Development

U. Kürsteiner

Head of Quality Management